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Arensmeier et al.

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- (54) HVAC SYSTEM REMOTE MONITORING AND DIAGNOSIS

- (56)
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- (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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Primary Examiner — Jack K Wang

- (65) **Prior Publication Data**

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- (57) **ABSTRACT**

Related U.S. Application Data

- (60) Provisional application No. 61/809,222, filed on Apr. 5, 2013, provisional application No. 61/800,636, filed on Mar. 15, 2013.

- A monitoring system for a heating, ventilation, and air conditioning (HVAC) system of a building includes a monitoring device installed at the building, a monitoring server located remotely from the building, and a review server. The monitoring device measures an aggregate current supplied to components of the HVAC system and transmits current data based on the measured aggregate current. The monitoring server receives the transmitted current data and, based on the received current data, assesses whether failures have occurred in first and second components of the HVAC components. The monitoring server generates a first advisory in response to determining that the failure has occurred in the first component. The review server provides the first advisory to a technician for review and, in response to the technician verifying that the failure has occurred, transmits a first alert.

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G08B 21/00 (2006.01)
F24F 11/00 (2006.01)

- (52) **U.S. Cl.**
CPC *F24F 11/0086* (2013.01); *F24F 11/006*
(2013.01); *G05B 15/02* (2013.01);
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- (58) **Field of Classification Search**
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F24F 11/006; F24F 2011/0067; F24F
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26 Claims, 39 Drawing Sheets

